## REMARKS

The Office Action dated April 4, 2006 has been received and reviewed by the applicant. Claims 1-12 are in the application.

Applicant has amended the abstract as requested by the Examiner.

Applicant has updated all of the application continuing data as requested by the Examiner.

Claims 1-5 and 7-12 stand rejected and claim 6 stands objected to. Applicant respectfully requests reconsideration in view of the remarks herein below.

The present invention relates to so called continuous printers. In such printers, ink is ejected from nozzles in a continuous stream of droplets. The droplets are discriminated between first, so called printing droplets that impact upon a receiver to form an image and second, non-printing droplets that do not reach the receiver and are generally gathered by a gutter to be recycled. While there are several technologies available in the prior art to discriminate between printing and non-printing droplets, the present invention relates to the method of separating the stream of droplets into different trajectories according to their respective ink volumes.

In fact, the invention is even more specific, in that it relates to those continuous printers wherein it is the small ink droplets that reach the receiver. That is, continuous printers in which the present invention is useful produce small printing ink droplets and large non-printing ink droplets. Such "small-drop" printers have higher resolution than "large-drop" printers that produce large printing ink droplets and small non-printing ink droplets. However, prior small-drop printers suffered from low throughput because of poor ink utilization. In accordance with the present invention, applicant has provided a small-drop continuous printer that achieves high throughput by enhanced liquid utilization.

In the disclosed embodiment of the present invention, this is accomplished by assigning a pixel time "P" equal to the period required to form small droplets. This is a great improvement over the prior art, in which the pixel time "P" is equal to the combined time required to form a small droplet and a

large droplet. That is, a series of small droplets can be ejected from a nozzle in no more time that it takes to form the actual droplets.

Unfortunately, assigning a pixel time "P" which is only equal to the period required to form small droplets will, from time to time, result in a situation where a printing droplet is called for but is not available. Such a situation is described in the disclosed embodiment as a sequence (1,0,1). That is, the second printing droplet called for by the second binary "1" cannot be produced because the nozzle is still busy producing the large non-printing droplet called for by the binary "0". The sequence is said to be invalid, and is replaced by a valid sequence that introduces an error in the printed image. Although an occasional error in an image is not detectable to the human eye, repeated errors form objectionable contouring artifacts. Thus, the error is spatially diffused by well known half toning algorithms.

Turning to the Office Action, Claims 1-5,7-9 and 11 stand rejected under 35 USC 102(b) as anticipated by Kakutani (US 60,089,691). The rejection is respectfully traversed.

Kakutani discloses a drop-on-demand printer that produces a droplet only when it is desired to print a spot on a receiver. There is no stream of droplets, as called for in the present claims. The Examiner refers to Fig. 10 of Kakutani as showing a stream of droplets, but that figure is merely a graph showing the lightness plotted against the recording ratio of each color ink.

Nor does Kakutani disclose the production of non-printing droplets. In the Office Action, the Examiner notes that Kakutani discloses droplets of two different volumes and states that the droplets that cause "light" dots are "non-printing" droplets. It would seem that a droplet that prints a light dot is mutually exclusive with a non-printing droplet. Nor does Kakutani appear to disclose droplets of two different volumes; merely of two different hues.

Further, Kakutani does not disclose that the different droplets are formed over different time periods.

Still further, Kakutani does not disclose the use of a half toning algorithm as suggested by the Examiner. In fact, Kakutani specifically relates to the technique of multitoning, which is quite different from half toning.

Accordingly, there are at least six meaningful distinctions between Kakutani and the present invention as defined by the claims of the instant application.

Regarding the rejection of Claims 2 and 3, the Office Action refers to the same process step S160 of Kakutani as showing both one-dimensional and two-dimensional error diffusion. In fact, neither is mentioned in the Kakutani disclosure. Further, one-dimensional and two-dimensional error diffusion are mutually exclusive and therefore could not both be shown by the single step S160 of Kakutani.

The Examiner refers to Kakutani's Fig. 19 as disclosing the invalid print command 1,0,1 (Claim 5); but Fig. 19 does not show any print commands.

With regard to Claim 7, the Examiner relies on Kakutani's Fig. 13 to teach that substantially a same number of droplets are printed in a contiguous area of pixels of the digital image as would have been printed if an original sequence of pixels of image data that includes invalid print commands could have been executed. However, that Fig. 13 is nothing more than a table showing the relationship between tone data and recording ratios of light ink and deep ink.

Regarding Claim 8, the Examiner suggests that Kakutani's col. 16, lines 48-50 discloses a binary output data production. In fact, that passage of the reference calls for "multi-valued coding" which is not binary.

Claim 9 calls for repeating steps (a) through (e). As explained above, Kakutani does not disclose steps (a) through (e), so it cannot disclose repeating them.

The figures and passage of Kakutani cited against Claim 11 as teaching the actuation of a heater at a plurality of frequencies do not include such a disclosure.

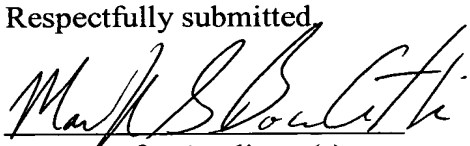
Claims 10 and 12 stand rejected under 35 USC 103(a) as unpatentable over Kakutani in view of Chwalek et al. (US 6,505,921). The Examiner's statement does not reflect an understanding of the difference between continuous printers (Chwalek et al.) and drop-on-demand printers (Kakutani). It would not have been obvious to combine the deflection of non-printing droplets as taught by Chwalek et al. with the mechanism of Kakutani. Kakutani discloses a drop-on-demand printer where there are no non-printing droplets to be deflected. Adding a blast of air to deflect non-existent droplets would be pointless.

Assuming arguendo that Kakutani and Chwalek et al. might be capable of combination, there is at least one limitation in the claimed invention that is not disclosed by the references individually or in combination. The primary reference fails to disclose those features set forth in Claim 1. The secondary reference fails to disclose, in conceptual terms, the information undisclosed by the primary reference.

For the reasons set forth above, it is believed that the application is in condition for allowance. Accordingly, reconsideration and favorable action are respectfully requested.

The Commissioner is hereby authorized to charge any fees in connection with this communication to Eastman Kodak Company Deposit Account No. 05-0225. ***A duplicate copy of this communication is enclosed.***

Respectfully submitted,



Attorney for Applicant(s)
Registration No. 31,330

Mark G. Bocchetti/gms
Rochester, NY 14650
Telephone: 585-477-3395
Facsimile: 585-477-4646

**If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.**

**Discussion regarding the Drawings:**

Formal drawings are submitted herewith under Separate Letter to the Draftsperson. For the convenience of the Examiner, a copy of the formal drawings is also attached with this amendment.